

Memorandum

Michael Lindgren
Chief Accelerator Officer
Accelerator Division
P.O. Box 500, MS 306
Kirk Road and Pine Street
Batavia, Illinois 60510-5011
USA
Office: 630.840.8409
mlindgre@fnal.gov

Date: October 27, 2020
To: Todd Sullivan
From: Michael Lindgren, Michael Lindgren, UID:mlindgre
Re: Approval for running beam to MeV Test Area (MTA)

Digitally signed by Michael
Lindgren, UID:mlindgre
Date: 2020.10.27 15:48:52
-05'00'

Message:

Safety documentation and procedures for approval to run beam to MeV Test Area (MTA) are now completed and in place. Therefore, you are hereby authorized to run beam to MTA.

cc: Mary Convery
Paul Czarapata
Tom Kobilarcik
Eric McHugh
Maddie Schoell
Sue McGimpsey

SYSTEM START-UP SIGN-OFF

The signatures below, unless noted in the comments section, indicate that the relevant systems are ready for the restart of beam operation. Indicate in the comments section any remaining work that would affect the restart of beam operations. Indicate N/A for departments that did not do any work on the system.

SYSTEM BEING SIGNED OFF: Linac NIF MTA Booster [8-GeV Line-MI-10 Region]
(Circle as Applicable) [MI-20-MI-62/Recycler] BNB NuMI P1-P2 Muon P3-Switchyard
Meson Primary MT MC NM FAST

| DEPARTMENT | DATE | SIGNATURE (Department Head/Designee) |
|--------------------------|-------------|------------------------------------------------------------------------------------|
| 1. Controls | 9-30-20 | for J. Patrick |
| 2. Cryogenics | | N/A |
| 3. E/E Support | 9/25/20 | Madelyn Schoell, UID:maddiew |
| 4. RPO Manager | 10/27/20 | Digitally signed by Madelyn Schoell, UID:maddiew Date: 2020.10.27 15:31:26 -05'00' |
| 5. LSO | | N/A |
| 6. External Beamlines | 10/27/20 | Thomas R. Kobilarcik |
| 7. Instrumentation | 10/5/2020 | Digitally signed by Thomas R. Kobilarcik Date: 2020.10.27 14:06:32 -05'00' |
| 8. Interlocks | 10-30-2020 | Randy M. Zifko |
| 9. Main Injector | | N/A |
| 10. Mechanical Support | 8 Oct 2020 | M/Mary Sigis |
| 11. Muon | | N/A |
| 12. Operations | 10/26/2020 | Chris Heston |
| 13. Proton Source | 13 Oct 2020 | N/A |
| 14. RF | | N/A |
| 15. ENG Support | 10/5/2020 | Paul C Garapata |
| 16. Target Systems | | N/A |
| 17. Shutdown Coordinator | 10/20/20 | |

Comments and special conditions (please mark comment with department # to connect comment with appropriate department):

#8 - Testing is complete, being signed off

The MTA radiation shielding meets the requirements documented in the "SHIELDING ASSESSMENT DOCUMENT FOR THE MEV TEST AREA AT THE FERMILAB LINAC ENDSTATION" shielding assessment.

FINAL APPROVALS Thomas R. Kobilarcik
System Department Head Digitally signed by Thomas R. Kobilarcik Date: 2020.10.27 15:36:01 -05'00'
Assigned RSO Susan McGimpsey Digitally signed by Susan McGimpsey Date: 2020.10.27 15:53:55 -05'00'
AD Division Head Michael Lindgren, UID:mlndgre Digitally signed by Michael Lindgren, UID:mlndgre Date: 2020.10.27 15:57:40 -05'00'

Date 10/27/20
Date
Date 10/27/20

BEAM PERMIT
10/27/2020**MTA Beamline Accelerator Safety Envelope (ASE) Limit**

The maximum beam intensity transmitted to the MTA Beamline is limited to:

2.11×10^{16} protons/hr at 400 MeV

No accelerator or beam line will transmit beam without an operational beam interlock safety system.

MTA Beamline Operating Limits

The maximum beam intensity transmitted to the Beamline is limited to:

2.7×10^{15} protons/hr at 400 MeV

Example:

3.75×10^{12} protons/pulse \times 720 pulses/hour = 2.7×10^{15} protons/hour

Special conditions and comments:

Reviewed by **Todd Sullivan** Digitally signed by Todd Sullivan
Date: 2020.10.27 15:43:09 -05'00'
Operations Department Head

Reviewed by **Thomas R. Kobilarcik** Digitally signed by Thomas R. Kobilarcik
Date: 2020.10.27 15:38:01 -05'00'
Systems Department Head

Reviewed by **Susan McGimpsey** Digitally signed by Susan McGimpsey
Date: 2020.10.27 15:54:52 -05'00'
Assigned RSO

Reviewed by **Madelyn Schoell, UID:maddiew** Digitally signed by Madelyn Schoell,
UID:maddiew
Date: 2020.10.27 15:33:28 -05'00'
ES&H Radiation Physics Operations Department Head

Approved by **Michael Lindgren, UID:mlindgre** Digitally signed by Michael Lindgren, UID:mlindgre
Date: 2020.10.27 15:57:08 -05'00'
Accelerator Division Head

Operator Signatures

Crew Chiefs

Donna J. 14611N 27 OCT 20
Dudley 10/28/20
Kelp 11/28/20
Michael Cunningham 10/28/20
Phil 131 11/05/20

Crew B

John 27 Oct 20
Matilda Mwaniki 10/27/2020
George Williams 10/28/20
Jamal Johnson 10/28/20

Crew D

Jacob Schaeffer 7 Nov 2020
Karl P. McDonough 11/4/20
Trey Thompson 11-4-20
Kevin 11/4/20

Other

Not signed 10-28-2020

Crew A

Jalques m. tahofuri
Alex Petros
Pat Smith 10/28/20
Jay L. Johnson 10-28-20
Ch. Chen 10/29/20

Crew C

Nathan R. Feltz 10/31/20
Judith Neil 10/31/20
Keymonty Bullard 10/31/20
John T. Hansen 10/31/20
Gilberto Perez 10/31/2020

Crew E

Sara Sedelbeck 10/28/20
Sherry Seton 10/28/20
Conley S. Watkins Oct 28, 2020
Hayden Hagan 10-28-2020
Corey Myer 10-28-20

Running Condition MTA

October 27, 2020

Area RSO

Sue McGimpsey

Mode of Operation Beam to MTA Experimental Hall and Beamline Stub

| | | | |
|--------------------|--------------------|--------------------|------------------------|
| Beam Limits | Beam Energy | ASE Limit | Operating Limit |
| | 400 MeV | 2.11E16 protons/hr | 2.7E15 protons/hr |

Critical Devices E:UHB03 and E:UBS01

Enclosures Protected MTA

Preferred Monitoring Devices* Intensity is monitored via E:UTR01

*Other methods of monitoring intensity may be used.

Requirements

Access Devices E:UHB03 and E:UBS01 must be disabled to access MTA.

Cool Off Period None

Special Interlocks The CDC Inputs including failure mode devices may all be found on the Safety System Status pages.

Special Concerns Any work performed on critical devices or obtaining a critical device key requires prior RSO approval.

Gates, Fencing and Passive Shielding Requirements There is no access to radiologically fenced areas without prior RSO approval. The shield wall between the MTA and Linac enclosure is required during operation. Shielding, fencing and posting are in accordance with 2020 "Shielding Assessment Document for the MeV Test Area at the Fermilab Linac Endstation". Routine access to the Radiation Areas by Radiological Worker trained personnel is permitted during beam operations. All penetrations and movable shielding must be locked with a PAD 118.

Assigned RSO approval also signifies that all necessary Interlock Tests have been completed and Removable Shielding is installed.

Sys. Dept. Head Approval **Todd Sullivan**
Digitally signed by Todd Sullivan
Date: 2020.10.27 15:42:34 -05'00'

Sys. Dept. Head Approval **Thomas R. Kobilarcik**
Digitally signed by Thomas R. Kobilarcik
Date: 2020.10.27 15:38:48 -05'00'

Assigned RSO Approval **Susan McGimpsey**
Digitally signed by Susan McGimpsey
Date: 2020.10.27 15:50:47 -05'00'

AD Head Approval **Michael Lindgren**
Digitally signed by Michael Lindgren, UID:mlindgre
Date: 2020.10.27 15:58:23 -05'00'

October 27, 2020

Area RSO

Sue McGimpsey

Operational Comments

MCR must be appropriately staffed according to the Accelerator Safety Envelope.

Running Condition MTA

October 27, 2020

Area RSO

Sue McGimpsey

Operator Signatures

Crew Chiefs

^{1401W}
Donna [Signature] 27 Oct 20
Dwight [Signature] 10/28/20
Kell [Signature] 10/28/20
Michele [Signature] 10/29/20
Michael [Signature] 11/03/20

Crew B

[Signature] 27 Oct 20
Matilda Mwaniki 10/27/2020
George Williams 10/27/20
Jamaal [Signature] 10/28/20

Crew D

Jacob Schaeffer 4 Nov 2020
Ken P. McDonough 11/4/20
Tyrone [Signature] 11-4-20
[Signature] 11/4/20

[Signature] 10-28-2020

Crew A

[Signature] 10/28/20
Charles [Signature]
Pat [Signature] 10/28/20
Joy [Signature] 10-28-20
Ch [Signature]

Crew C

Nathan [Signature] 10/31/20
Jade [Signature] 10/31/20
Kip [Signature] 10/31/20
Gill [Signature] 10/31/2020
Dale T. [Signature] 10/31/20

Crew E

[Signature] 10/28/20
Antony [Signature] 10/28/20
Cory J. [Signature] Oct 28, 2020
Hoyan [Signature]
Cory [Signature] 10-28-20

Other